

HEALTH SCIENCES PATHWAY EDUCATION

I. DEFINITION

The Health Sciences Pathway in Michigan comprises the body of related subject matter, or the body of related courses and planned experiences, designed to develop understanding, and to develop the skills required to support the Health profession.

II. MISSION STATEMENT

Students have the opportunity to acquire skills that prepare them for successful career entry, advancement and/or continuing education. These skills should be transferable as well as job specific, and basic to their general education, providing them with the foundation for life-long learning.

The primary objectives of Health Sciences Education programs are:

1. To give students the specific skills needed for job-entry positions now and broad transferable skills, allowing students further employment flexibility.
2. To acquire an awareness of the structure and future trends within the health care industry to increase students' options for occupational choice in the pursuit of a job, as well as providing a cognitive base for postsecondary education or a combination of both in the health field.
3. To provide both school and work-based learning experiences.
4. To bridge the gap between education and the world of work.
5. To prepare students for occupational objectives in providing diagnostic, therapeutic, environmental, and information services to people. Also included are human relationships and skill training essential to providing care and health services to clients.
6. To recognize and accommodate changes in the field and integrate academic standards with national health-care skill standards.

III. INSTRUCTIONAL CONTENT

A. Content – This instructional component should include:

- 1) Basic health science skills such as anatomy and physiology;
- 2) Leadership skills;
- 3) Health career information and guidance;

- 4) Basic communication, computation and problem-solving skills necessary for the health care industry;
- 5) Awareness of opportunities for entrepreneurship, continuing education, and life-long learning; and
- 6) Health maintenance life skills.

B. Academic foundations, including:

1. Human structure and function, including diseases and disorders;
2. Communication skills including reporting;
3. Systems, including change;
4. Employability skills, including interpersonal communication, personal growth and development, and career decision-making;
5. Legal responsibility, including legal practices and implications;
6. Ethics, including cultural, social, and ethnic diversity;
7. Safety practices, including infection control, personal safety, environmental safety and hazards, emergency procedures and protocols;
8. Teamwork; including Health care teams and Team Member Participation, and
9. Health maintenance practices, including healthy behaviors, nutritional practices and health assessment.

IV. INSTRUCTIONAL PROGRAMS

CIP CODE

PROGRAM DESCRIPTION HEALTH SCIENCES CLUSTER

The Health Sciences Education Cluster is designed to provide students with the broad, transferable skills required by a variety of health provider jobs, both now and in the immediate future. The knowledge and competencies in the cluster are considered common to many job titles in the health occupations field. Students are offered options allowing them to explore a variety of jobs within the health care industry before choosing a specialized program of study. The cluster also serves as a basis for an interdisciplinary sequence with other occupational disciplines such as business. Students are aided in making short and long-term health care career decisions by providing

them with the basic skills, knowledge, and attitudes common to all present and emerging health occupations.

51.9999 03 Dental Occupations Cluster. Instructional programs designed to provide students with those skills and experiences necessary for them to provide supportive services to the dental profession and/or serve as a career pathway.

Dental Assisting. An instructional program that prepares individuals to assist a dentist at the chairside in a dental operation, to perform reception functions, clerical functions, and selected dental laboratory procedures.

Dental Laboratory Technology. An instructional program that prepares individuals to make and repair restorative appliances required for the oral health of the patient, as prescribed by a dentist.

05 Diagnostic Services. A group of instructional programs that prepares individuals to use equipment and medical materials for diagnostic and therapeutic purposes by learning to operate electrocardiograph and electroencephalograph machines.

Electroencephalograph Technology. An instructional program that prepares individuals to operate and maintain the electroencephalograph to measure impulse frequencies and differences in electrical potential between the various areas of the brain to obtain data for the physician to use in diagnosing brain disorders. Includes instruction in making minor repairs.

Electrocardiograph Technology. An instructional program that prepares individuals to operate and maintain an electrocardiograph machine to record electromotive variations in the action of the patient's heart muscle. Includes instruction in making minor repairs.

Clinical Laboratory Assisting. An instructional program that prepares individuals to perform routine clinical laboratory procedures under the supervision of medical laboratory technicians, pathologists, or other physicians.

Histologic Technology. An instructional program that prepares individuals to prepare, section, and stain tissue for microscopic study by a pathologist or other clinical scientist.

04 Medical Office Cluster. A group of instructional programs that prepares individuals to assist specialists in the health field in providing support functions in such areas as the medical offices, hospital wards, business offices, clinics, and vision centers.

Medical Office Assisting. An instructional program that prepares students to perform secretarial, clinical, and laboratory duties in a medical office or other health care facility. Students will utilize medical terminology, learn hospital, clinical, or laboratory procedures, and understand legal and insurance forms. The student takes dictation in shorthand or uses a transcribing machine and compiles and records medical charts, case histories, reports and correspondence into typewritten mailable format. The student will learn to keyboard, input, edit, and revise medical records and correspondence utilizing word processing equipment.

Optometric Assisting. An instructional program that prepares individuals to assist in performing tests to determine defects in vision, preparing and fitting eyeglasses or contact lenses, and administering corrective eye exercise and other treatments which do not require drugs or surgery.

Health Unit Coordinator. An instructional program that prepares individuals to perform such duties as answering the telephone, relaying messages, receiving and directing visitors, transcribing orders and preparing requisition forms in the nursing unit of a hospital or other health care facility; under the supervision of a nursing service administrator.

06 Pharmacy Assisting. An instructional program that prepares individuals to assist the pharmacist in performing routine duties related to maintaining and dispensing pharmaceutical supplies and medications, under supervision of a registered pharmacist.

02 Nursing Occupations Cluster. Instructional programs which prepare students for occupations that render health services directly to individuals.

Nursing Assisting. An instructional program that prepares individuals to perform routine tasks under the supervision of a registered or licensed practical nurse, in the provision of personal care to individuals who are receiving nursing care.

Practical Nursing. An instructional program that prepares individuals to assist in providing general nursing care under the direction of a registered nurse, or physician.

Home Health Aide. An instructional program that prepares individuals to assist elderly, convalescent, or handicapped patients in their homes by providing for physical, mental, emotional, and/or social health-care needs, under the supervision of a registered nurse or physician.

08 Emergency Medical Technology. An instructional program that prepares individuals to function at the emergency level to treat various cardiopulmonary problems, using cardiac resuscitation and other emergency equipment; airway, fracture, and hemorrhage management; emergency childbirth; and special care of patients exposed to heat, cold, radiation, or contagious disease. Includes instruction in techniques and application of intravenous fluid therapy, pharmacology, and anesthetics.
Medical First Responder

09 Patient Services

V. SPECIAL CONDITIONS

Those educational agencies interested in operating Health Sciences Education programs will go through a planning and application process,

Some Health Sciences Education programs must meet special requirements for approval. These are specified in rules and regulations and enforced by specific governmental agencies. Such is the case for the Practical Nursing program, which is under the auspices of the State Board of Nursing in the Department of Licensing & Regulation and the Certified Nursing Assisting Program whose curriculum is directed by Consumer and Industry Services. Health care resources must be surveyed locally and regionally to assure programs considered are compatible with the needs of the community, the students, and the employers.

VI. ADVISORY COMMITTEE

All state approved career and technical education programs are required to make use of an occupational advisory committee, composed primarily of persons from business, industry, and labor, knowledgeable in that specialized occupational area. Advisory committees can help provide assistance in the development, promotion, operation, evaluation, and maintenance of education programs. Advisory committees may be established to serve an occupational program or closely related cluster of programs on a building, district, multi-district, or CEPD arrangement. Local conditions will dictate the most effective and efficient structure to establish. Additional information regarding advisory committees can be found in Tab II, Section I of the Administrative Guide for Vocational Technical Education in Michigan.

VII. TEACHER CERTIFICATION

All persons teaching a state approved education program are required to be vocationally certified or annually authorized. The Michigan Department of Education, Teacher

Preparation and Certification Services, may be contacted for detailed information concerning vocational certification requirements. Questions pertaining to vocational certification should be directed to the Michigan Department of Education, Teacher Preparation and Certification Services, P. O. Box 30008, Lansing, Michigan 48909; telephone (517) 373-3310.

VIII. PROGRAM ORGANIZATION

Health Sciences Education encompasses those careers providing health care services to individuals and communities in therapeutic, preventive, environmental, and information areas in a wide selection of settings. Included are health care facilities such as nursing homes, hospitals and extended care facilities, community health service agencies, professional offices, private clinics and Health Maintenance Organizations (HMO's).

A variety of teaching methods are utilized by the Health Sciences instructor including 1) guest speakers; 2) large and small group discussion and instruction; 3) individualized instruction; 4) field trips; 5) role-playing/simulation; 6) audiovisual aids; 7) demonstration; and 8) (cluster and specific preparation) clinical experience/instruction, lecture, cooperative learning, self assessment and evaluation, oral and written reports, and tutoring. Health Science Education programs are organized around a cluster. An essential part of the educational program includes planned, supervised experience in the clinical setting, as well as in-school learning. HS programs will include any one or a combination of the following instructional methods: Cooperative Education, in-school laboratory, or work-based learning.

IX. PROGRAM SEQUENCE

The ideal course sequence for a Health Sciences program is as follows: Tenth-grade students complete career exploration through job shadowing, computer searches, etc. Eleventh-grade students complete the Health Sciences Skill Standards which helps them clarify career goals and combines classroom instruction with on-the-job experience for the purpose of mastering both the validated core competencies and the competencies for an entry-level health care provider. Students may obtain more specific entry-level training in areas of health needing additional training such as: Nursing Assistant, Dental Assistant, Dental Technologist, Medical Laboratory, and Practical Nurse. Additionally, students may enroll in a Cooperative Education Course after completion of the HS Cluster.

X. FACILITIES AND EQUIPMENT

Provision for space and equipment is necessary that will create, as much as possible, the atmosphere of the appropriate health care agency for which the training will be conducted. Provision for a supply of hot and cold water, with adequate sink facilities, is essential for all in-school laboratories where HS Education programs are to be conducted. Storage cabinets and work counters, with built-in storage are a must. Adequate 110v electrical

outlets should be conveniently located around the room. Location of the classroom needs to be away from disturbing noises, visitors, and student traffic. Equipment layout should allow for flexibility and assure privacy in health occupations practice areas. The most recent equipment list requirements will be listed as a part of this information.

Student/Space Ratios

The following ranges for square feet per pupil per CIP Code number reflect the housing needs for equipment and activities found in a traditional program. An innovative approach in the classroom and in health care facilities may require lighter or heavier space allocations for student-space ratios.

Square-Footage Range: 80-100 square feet per student.

Facilities/Equipment/Materials

Equipment, methods, materials, and facilities should be compatible with those used in the workplace and should be structured to accommodate the individual needs of students. Textbooks, software, and materials should be up to date and similar to those used in business and industry.

Program Completion

A Health Sciences Education program completer is a student who has completed a minimum of one course which meets **7200 minutes** per year and has mastered the competencies of a State approved program.

XII. COOPERATIVE EDUCATION

Cooperative education is a method of instruction that combines work-related learning experiences available in the community with career and technical instruction provided in an educational institution.

The essential elements of cooperative education programs include:

- A) Alternate or parallel periods of instruction in school and supervised public or private employment.
- B) A written training agreement among the school, an employer, and a student.
- C) Career and Technical instruction (including required academic instruction) related to the job and the student's academic study or career goals.
- D) Carefully planned alternation of study and work supervised to further the student's education and employability, and

- E) The student's employment and compensation in compliance with federal, state, and local laws.

See Tab II, Section J of the Administrative Guide for Vocational Technical Education in Michigan for additional information.

XIII. CAREER AND TECHNICAL STUDENT ORGANIZATION

A career and technical student organization is an integral part of a high quality Health Sciences Education program. All programs are encouraged to operate Health Occupations Students of America (HOSA) chapters as an intracurricular component.

A) The purposes of HOSA are as follows:

1. To encourage the development of occupational skills, knowledge, and abilities to a high level of proficiency.
2. To develop leadership ability through participation in educational, career and technical education, civic, recreational, and social activities.
3. To develop character and to prepare members for useful citizenship and foster patriotism.
4. To motivate students and vitalize the instructional program.
5. To develop and strengthen the confidence of young people in themselves and their work.
6. To unite in a common bond without regard to race, creed, or national origin, students with similar career objectives.
7. To assist students in refining their career objectives through realistic training.
8. To develop a sense of social acceptability and individual responsibility toward the home and community.
9. To encourage scholastic improvement and school loyalty.
10. To foster a deep respect for the dignity of all work.

B) Benefits to the students, teachers, schools, and communities who participate in the student organizations.

1. Benefits to Students:

- a) Provides incentives to improve personal and occupational skills.
- b) Provides career awareness and exploration activities.
- c) Provides leadership development opportunities.
- d) Provides activities to develop civic understanding and responsibility.
- e) Provides an opportunity to meet with health and business leaders and students with similar backgrounds and career interests.

2. Benefits to Teachers:

- a) Motivates students.
- b) Publicizes the career and technical education program.
- c) Provides opportunities to meet and work with career and technical education teachers in the same occupational area.
- d) Provides an established recognition program with awards for student achievement.
- e) Provides opportunities to meet and work with leaders in health, business, and education.

3. Benefits to School/Community:

- a) Publicizes the school and community.
- b) Creates school spirit.
- c) Develops pride in the school and community.
- d) Provides students with leadership skills for future leadership positions.
- e) Involves students in community service activities.
- f) Students are better trained to enter work force.

C) Experiences and Opportunities for HOSA Members

HOSA members learn to be both leaders and followers. They learn how to plan activities, to carry out activities, to participate in cooperative experiences, to preside at meetings, to serve as chairpersons for committees, to manage finances, to get group consensus for decision making, and to acquire the skill of achieving compromise for the good of the majority – a trait often needed on the job.

Being successful in a vocation often takes more than occupational skills. It also takes social understanding of human relations. Human relations is difficult to teach in the classroom. Students need experiences in social settings to acquire the social intelligence needed to succeed in their jobs. Through HOSA conferences,

workshops, and competitive events, students increase a sense of belonging, increase ability to adjust and increase the positive personality traits.

HOSA provides involvement and experiences with the community. Students can help to improve their community, learn to acknowledge the rights of others and develop useful citizenship habits by their involvement in community activities.

Through the awards and competitive events program, students receive motivation and recognition for their accomplishments. Competitions are conducted at the local, regional, state and national levels and are directly related to the career and technical education programs in which the students are enrolled. Competitions are hands-on experiences with evaluation and judging done by individuals employed in the health field.

D) Operational Structure for HOSA

The local chapter is the foundation for the organization. Chapters are organized in the local high school; or area career and technical center based on the school's Allied Health Technologies Education program. The Allied Health teacher serves as the advisor for the local chapter. Local chapters elect student officers: President, Historian, Secretary, Treasurer, and Parliamentarian to lead the local chapter.

HOSA also has a regional structure within the State which provides geographical boundaries for leadership meetings and competitions. These seven regions make up the State association which serves as the organization that coordinates, communicates, and plans activities. At the State level, students are also elected to office (President, State Vice-President, and six Regional Vice-Presidents) each year and their function is to plan and lead regional and State activities.

At the national level, Michigan HOSA is affiliated with the National Health Occupations Students of America. National HOSA provides materials for the various state organizations and plans and conducts a national conference for HOSA members and advisors.

HOSA has a State Advisory Board that provides direction for the State organization. This State Advisory Board is comprised of one teacher/advisor from each HOSA region. A business and industry board is the governing board of Michigan HOSA. It is comprised of representatives from health associations, business and volunteer organizations and postsecondary facilities serving the State of Michigan. The chairperson of the advisory board sits on the board also. The Board brings in the health-care industry involvement necessary for HOSA to remain current in training and health care issues for students.

E) Finances

In order for students and advisors to be considered members of HOSA they must pay annual membership dues. Generally, there are dues at the local, State, and national levels. The amount of the local dues is set at the local level while the State dues are set by the respective levels. Payment of dues can be the responsibility of each student or they can be paid by the local chapter through fundraising, school contributions, or support from business and industry.

Costs to attend regional, State and national conferences and activities are the responsibility of the local chapter. These costs are generally paid from revenue earned through fund raising activities. There are many fundraising activities that can relate to the career and technical program and, therefore, serve as a fundraiser as well as an educational activity.

Career and technical education State aid added cost funds can be used to pay for teacher/advisor expenses (mileage, meals, lodging, etc.) to attend regional/State/national conferences and activities. These added cost funds can also be used for student expenses. However, local districts may elect to pay for some or all student expenses out of their general fund revenues.

F. Technical Assistance

The State Board of Education has approved funding for the Michigan Health Council to provide the leadership for the operation of the Michigan HOSA organization. Their responsibilities are to prepare and distribute materials, plan conferences, plan and conduct competitive events, communicate with chapters, provide advisor inservice, etc.

For information about HOSA contact:

HOSA Project Director
2410 Woodlake Drive
Suite 440
Okemos, MI 48864
(517) 347-03332
hosa@mhc.org

or Health Sciences Pathway Consultant
Michigan Department of Career Development
Office of Career and Technical Preparation
P. O. Box 30712
Lansing, Michigan 48909
(517) 241-4355

XIV. REFERENCES

Health Sciences Pathway curriculum standards have been developed and aligned with the National Health Care Skill Standards. A certificate with competency details is available. This core and many career-specific areas are available through the Michigan Center for Career and Technical Education, Michigan State University, 1405 S. Harrison, Manly Miles Building, Suite B-15, East Lansing, Michigan 48823; (800) 292-1606; www.mccte.educ.mse.edu.

XV. TECHNICAL ASSISTANCE

Additional information regarding the development and implementation of programs can be obtained by contacting:

Health Sciences Pathway Consultant
Michigan Department of Career Development
Office of Career and Technical Preparation
P. O. Box 30712
Lansing, Michigan 48909
(517) 241-4355